Central Florida Pilot Radiation Assessment

ANTICIPATED QUESTIONS

1. What has radiation got to do with phosphate mining?

Phosphate ore contains radium as a naturally occurring material. The radium, which gives off gamma radiation, becomes concentrated when the ore is mined and processed. Gamma radiation is similar to the type of radiation used in medical X-rays and can remain in the ground for hundreds of years.

2. Why is the EPA doing this pilot radiation assessment?

The Agency is assessing gamma radiation in populated areas where phosphate mining once occurred to see how radiation levels in these areas compare to average levels (background) in non-mined areas of central Florida. The need for a pilot radiation assessment became clear as a result of the EPA's current knowledge about the potential for elevated gamma radiation levels on formerly mined lands.

3. Can gamma radiation cause cancer?

Radiation is a fact of life, and all of us are being exposed every day to radiation, including gamma radiation, from many sources in the environment. Gamma radiation comes from naturally occurring materials, including phosphate deposits and many types of rocks and minerals found in the environment. Although exposure to high levels of gamma radiation could be related to cancer under some conditions, the levels of radiation typically found in phosphate ore and other natural sources are unlikely to cause adverse effects.

4. Do you have evidence of health problems associated with radiation in the areas that you are investigating?

No, Region 4 has no evidence of specific problems or elevated gamma radiation levels in the assessment area.

5. If there is no evidence of health problems, why do the assessment when it is likely to cause fear and negative effects on property values?

The Agency's mission is to protect human health and the environment. Current knowledge of past mining practices and investigations of similar mining sites in central Florida suggest the potential for levels of gamma radiation to be higher than background at mining sites closed before the mid-1970s. We do not expect to find levels that are more than 2 or 3 times background, which would not cause adverse effects. However, it is EPA's responsibility to verify the levels and to determine whether long-term exposures could occur.

6. How long has the EPA suspected that there could be excess radiation from past mining activities in these areas?

The EPA has been aware that former phosphate mining areas can be associated with higher than average radiation levels since the late 1970s. At that time, however, the Agency had no regulatory authority to address such sites.

7. Why hasn't the Agency done anything before now?

In the early 1990s, under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund as it is commonly called) and its amendments, the EPA identified a number of former mining sites in central Florida as potential Superfund sites. With limited resources and because these sites, which are in sparsely populated areas, do not pose an actual exposure risk at present, the EPA was unable to take further action on these sites.

In the late 1990s??, however, the EPA investigated the former Tenoroc mine near Lakeland, FL. Information from this investigation expanded the Agency's understanding of potential conditions that may exist at other former mining sites in central Florida.

In the last 3 years, the Agency has been evaluating the potential for elevated radiation levels across the large areas of central Florida where phosphate mining has occurred. As a result, the EPA has chosen, as an initial step, to do a pilot radiation assessment on formerly mined areas that have been redeveloped as residential communities in central Florida.

8. How did the EPA pick locations for the flyovers?

The EPA's first priority is to check areas where people are living on what we believe to be reclaimed, formerly mined land. The Agency's goal for the assessment is to determine whether long-term exposure could result if gamma radiation in these locations is higher than the average for non-mined areas of central Florida.

9. Why doesn't the flyover area include the 21 phosphate mining sites that the EPA has listed as potential Superfund sites?

We are prioritizing and focusing Agency resources on populated areas. Future consideration will be given to the other locations, which are less populated, as resources permit.

10. What kind of information will the flyovers provide? What will it mean?

The flyover assessment will provide measurements of all gamma radiation on the ground, regardless of its source. Evaluation of the assessment data will identify whether the gamma radiation is emitted from natural, undisturbed sources or from former mining and processing activities in which the radiation became more concentrated.

11. Is the data from the flyovers reliable?

Measuring gamma radiation with remote sensing technology from the air is a proven method that has been used by the National Nuclear Security Administration for many years, both nationally and internationally. Data collected by this method has been verified as reliable and accurate.

12. Is there another way to measure radiation that would not be so visible or cause alarm?

Other methods of measuring radiation would require direct access to personal property to obtain soil samples or use other types of radiation detection devices. The Agency believes that such methods would be much more obtrusive than the helicopter assessment. The flyovers are the most reliable, effective, and least obtrusive way to assess radiation levels over large areas.

13. What will the EPA do with the information collected during the flyovers?

The EPA will evaluate the data, prepare a report on the assessment results, and make the report available to the public. The EPA expects the report to be ready several months after the flyovers are completed. The report will include areas where assessment results indicate further investigations or other actions are needed.

14. What will the EPA use as a background level for gamma radiation?

Background levels of gamma radiation vary in different parts of the country and even in different parts of Florida. The Agency plans to compare assessment results with the average levels (background) of gamma radiation found on non-mined lands in central Florida.

15. If radiation readings are above background, what will the EPA do?

The EPA's responsibility to protect human health requires a careful evaluation of the pilot radiation assessment results. If locations have readings that are 2 or 3 times background levels for central Florida, the EPA will likely conduct additional investigations of those locations. If these locations are on private or residential property, the Agency would work with the property owners to test the soil or take other measurements.

16. What will the EPA do if it appears that people are being exposed to radiation?

The Agency will carefully evaluate assessment results and move forward in a cautious and protective manner. Based on information from other former mining sites, the Agency does not expect to find gamma radiation levels that would cause a health risk due to exposure. If, however, residential locations have readings that are 2 or 3 times background, the EPA will evaluate the risk of long-term exposure and take appropriate actions, including further investigation, to address the risk.

17. Will the EPA address health concerns?

The EPA is authorized to protect human health and the environment by conducting site investigations and implementing cleanup actions, as necessary. The Agency for Toxic Substances and Disease Registry (ATSDR), an agency of the Department of Health and Human Services, addresses health concerns related to hazardous sites. The EPA is not authorized to directly address or assess health concerns reported by individuals; ATSDR is charged with this authority.

18. If cleanup is needed, who will pay for it?

If the EPA's investigations of former mining areas point to the need for cleanup, the Agency will follow its usual procedure of identifying the potentially responsible parties (PRPs). PRPs are normally required to pay for cleanups; if these parties cannot be identified or are unable to pay (e.g., bankrupt), the EPA will use Agency funds is complete cleanup actions needed to protect human health.

19. We know that EPA cleanups take a very long time. If you decide cleanup is necessary, how long will people have to wait?

If EPA decides that site cleanup is necessary, we must first evaluate whether the site poses an immediate exposure risk. This is highly unlikely for the locations in this assessment; however, the Agency has a mechanism to address immediate risks. For sites that do not pose an immediate risk, the EPA must work through the process established under CERCLA, which calls for a complete site investigation and evaluation of cleanup options before deciding what actions are appropriate. While this process can take several years, the EPA keeps the public informed of its progress and invites public input before making cleanup decisions.

20. Is the EPA working with the State on this assessment? What is the State's response to EPA's plans for the assessment?

The EPA has met several times with State officials to discuss the issue of gamma radiation associated with mining sites. The Florida Department of Environmental Protection and Department of Health are aware of the EPA's plans for the flyover assessment. While not directly involved in the assessment, the State has provided information and suggested areas for focusing our efforts.

21. What is EPA's position on current or proposed phosphate mining activities? Is phosphate mining hazardous to our health or the environment?

The EPA does not regulate current or proposed phosphate mining operations. The State of Florida is responsible for these activities, and routinely monitors active mining operations. The EPA takes no position on the safety of current mining; the Agency's role is to protect human health and the environment by addressing formerly mined lands.

22. Can you give us examples of other locations in the country where this type of radiation assessment has been done with the same kind of equipment?

Gamma radiation assessments using the same type of equipment have been done in many other locations across the country. These locations include the Navajo Nation in Arizona, where helicopter assessments were conducted in 1999; the Sandia National Laboratories and portions of Kirtland Air Force Base the Cibola National Forest near Albuquerque, New Mexico in 2000; and the Iowa Army Ammunition Plant in 2002.

23. How much will the pilot radiation cost?

The EPA estimates the pilot radiation assessment will cost about $1.2 million.

24. What is the name of the company that will do the assessment?

EPA Region 4 has contracted with the Department of Energy Remote Sensing Laboratory, in conjunction with the Argonne National Laboratory of Oak Ridge, Tennessee, to perform the assessment. Bechtel Nevada is the contractor that owns the flyover equipment and will provide the personnel to conduct the assessment.